

REMARKS

Claims 1-8 pending in this application, of which claims 1 and 6 are amended. No claims are canceled or added. The abstract and the specification are amended.

Applicant's disclosure stands objected to because of recitations in the abstract and on page 5 of the specification. As shown above, both the abstract and the page 5 are amended via the present submission. Withdrawal of the objection is now solicited.

Claims 1-8 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite due to recitations in claims 1 and 6. As shown above, both claims 1 and 6 are amended via the present submission. Withdrawal of the rejection is now solicited.

Claims 1, 4, and 6 stand are rejected 35 U.S.C. § 103(a) as obvious over **Flugger** (U.S. Patent No. 5,892,186) in view of **Chien** (U.S. Patent No. 5,266,755). Applicant respectfully traverses this rejection.

The rejection relies on **Flugger** as the primary reference to teach an "engine muffler" comprising a "sound absorbing material" interposed between a "internal tube" and an "external tube." However, independent claims 1 and 6 also specify that:

a projection projecting toward the sound absorbing material is formed on the external tube along almost the entire periphery thereof.

It is acknowledged in the Office Action (page 4, first paragraph) that **Flugger** does not teach this feature of the claimed invention.

Accordingly, to establish a *prima-facie* case of obviousness, the Manual of Patent Examining Procedure (MPEP) requires some suggestion or motivation, either in **Flugger** or in the knowledge

generally available to one of ordinary skill in the art, to modify the **Flugger** muffler assembly so that it would have a “projection” as claimed. (See MPEP § 2143, page 2100-124, first column.) The Office Action indicates, on page 4, second and third paragraphs, that **Chien** provides the required suggestion. Applicant respectfully disagrees.

Chien teaches in Figs. 2 and 3 a car silencer with significant structural dissimilarities from that of **Flugger**. The **Chien** car silencer has an outer pipe 1 that supports an inner pipe 3, which contains therein an absorbing and filtering medium 4. **Chien** also teaches an annular groove 16 in outer pipe 1, which forms a “projection” projecting inwardly.

Chien explains in column 2, lines 14-23, that the purpose of the annular groove 16 is to create a “projection” to prevent inner pipe 3 from moving toward the front of the car silencer. Because fasteners 18 (abutting rim groove 331) prevent inner pipe 3 from moving toward the rear of the car silencer, inner pipe 3 (with absorbing and filtering medium 4 contained therein) remains stationary relative to outer pipe 1.

However, **Flugger**’s casing 15 (relied upon to teach the claimed “external tube”) does not need such a “projection” to keep its retaining shell 17 (relied upon to teach the claimed “internal tube”) relatively stationary thereto. Fig. 1 shows that the tapering end portions of casing 15 prevent retaining shell 17 from moving. The addition of a “projection” would not prevent any additional movement.

Accordingly, applicant respectfully submits that **Chien**’s projection in its “external tube” would *not* suggest adding a similar projection to **Flugger**’s casing 15. For at least this reason, the

obviousness rejection should be withdrawn.

Applicant of course acknowledges the statement in the Office Action (page 4, third paragraph) that the added “projection” would provide a means to firmly secure the position of the sound absorbing material within the muffler. However, the Office Action provides no prior art teaching or suggestion that the movement of sound absorbing material within a muffler similar to that of **Flugger** was a known problem, *and* the Office Action also fails to indicate any prior art teaching or suggestion that adding such a projection to **Flugger**’s retaining shell 17 would prevent such movement. Both showings would be necessary establish a *prima facie* case of obviousness.

(Applicant is not arguing that, *if* an inward projection were formed in **Flugger**’s casing 15, the sound attenuating material 20 would not be less likely to lean to one side or to be deformed from vibrations. Applicant instead argues that the Office Action provides no suggestion or motivation *in the prior art* to add such a projection to the **Flugger** muffler assembly 10, as required by MPEP § 2143 to establish a *prima facie* case of obviousness.)

Therefore, applicant respectfully solicits the withdrawal of the obviousness rejection of independent claims 1 and 6. Because claim 4 depends from claim 1, applicant solicits the withdrawal of the obviousness rejection of that claim, also.

The remaining claims, claims 2, 3, 5, 7, and 8, each depend from one of independent claims 1 and 6. The rejection of claims 2, 3, 5, 7, and 8 relies on **Flugger** and **Chien** to render independent claims 1 and 6 obvious. For at least this reason, applicant respectfully submits that those rejections are also improper and should be withdrawn.

In view of the amendments and remarks above, applicant now submits that the entire application is in condition for allowance. Accordingly, a Notice of Allowability is hereby requested. If for any reason it is felt that this application is not now in condition for allowance, the Examiner is invited to contact applicant's undersigned attorney at the telephone number indicated below to arrange for disposition of this case.

Attached hereto is a marked-up version of the changes made to the abstract, specification, and the claims by the current amendment. The attached page is captioned "Version of Amendments with Markings to Show Changes Made."

In the event that this paper is not timely filed, applicant petitions for an appropriate extension of time. The fees for such an extension, or any other fees which may be due, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



Joseph L. Felber
Attorney for Applicant
Reg. No. 48,109

JLF/llf

Atty. Docket No. 011157
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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PATENT TRADEMARK OFFICE

Enclosures: Substitute Abstract of the Disclosure
Version with markings to show changes made

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ABSTRACT OF THE DISCLOSURE:

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This engine muffler has a sound absorbing material interposed between an internal tube and an external tube which is formed with a projection projecting toward the sound absorbing material along almost its entire periphery. When interposing the sound absorbing material between the internal tube and the external tube and drawing the end of the external tube for manufacturing the muffler, the projection projecting toward the sound absorbing material is formed on the external tube almost along its entire periphery after inserting the sound absorbing material between the internal tube and the external tube but before drawing the end of the external tube.

VERSION OF AMENDMENTS WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT:

[This invention relates to a muffler to be used in the exhaust system of an engine for automobiles, specifically to a muffler including a sound absorbing material interposed between the external tube and the internal tube, and a method of manufacturing the same. There are provided a durable and easy-to-manufacture engine muffler in which the sound absorbing material is reliably secured during use and during manufacturing process, and a method of manufacturing the same. The] This engine muffler [comprising] has a sound absorbing material interposed between an internal tube and an external tube which is formed with a projection projecting toward the sound absorbing material [on the external tube] along almost its entire periphery [thereof]. When interposing the sound absorbing material between the internal tube and the external tube and drawing the end of the external tube for manufacturing the muffler, the projection projecting toward the sound absorbing material is formed on the external tube almost along its [the] entire periphery [thereof] after inserting the sound absorbing material between the internal tube and the external tube but before drawing the end of the external tube.

SPECIFICATION:

Replace the paragraph beginning on page 5 at line 1 with the following:

The sound absorbing material 4 is formed of a plurality of kinds of sound absorbing materials 4a-4c having different properties in heat-resistance and sound absorbing capability multilayered in the direction of thickness. In the case shown in the figure, a sound absorbing material 4a formed of a heat-resisting material such as stainless wool is arranged on the outer periphery of the internal tube

[1] 2, and a sound absorbing material 4b formed of a heat-resisting material such as glass wool that absorbs the sound better than the sound absorbing material 4a, and a sound absorbing material 4c formed of a sound absorbing material such as glass wool that is less expensive than the sound absorbing material 4b are arranged on the outer periphery thereof. The sound absorbing material 4a also has a function to prevent the sound absorbing materials 4b, 4c from dispersing.

Replace the paragraph beginning on page 6 at line 7 with the following:

When mounting the muffler 1 constructed as described above in the exhaust system of an engine for automobiles, the exhaust [pipe] pipes P1, P2 are connected to both ends of the muffler 1. Therefore, the sound absorbing material 4 placed between the internal tube 2 and the external tube 3 is held by the projection 6, and thus is prevented from leaning to one side or being deformed even when vibrations from the engine or of the vehicle body act on the muffler 1. Even when the axial length of the sound absorbing material interposed between the internal tube and the external tube is long, leaning to one side can be prevented. In addition, in the structure in which sound absorbing materials of different kinds are multilayered in the direction of thickness as shown in the figure, occurrence of slippage or wrinkles at the mating portion is reliably prevented.

CLAIMS:

1. (Amended) An engine muffler comprising a sound absorbing material interposed between [the] an internal tube and [the] an external tube, wherein a projection projecting toward the sound absorbing material is formed on the external tube along almost the entire periphery thereof.

6. (Amended) A method of manufacturing an engine muffler comprising the steps of[;]:
interposing a sound absorbing material between [the] an internal tube and [the] an external tube; and

drawing the end of the external tube;

wherein a projection projecting toward the sound absorbing material is formed on the external tube along almost the entire periphery thereof after inserting the sound absorbing material between the internal tube and the external tube but before drawing the end of the external tube.